



Selfless giving

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ABSTRACT

In four studies, we show that people who anticipate more personal change over time give more to others. We measure and manipulate participants' beliefs in the persistence of the defining psychological features of a person (e.g., his or her beliefs, values, and life goals) and measure generosity, finding support for the hypothesis in three studies using incentive-compatible charitable donation decisions and one involving hypothetical choices about sharing with loved ones.

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1. Introduction

Imagine deciding whether to give some future income to a charity. Many factors might influence your decision: your anticipated income, your anticipated needs, the value you place on the charity. But is your decision also influenced by how you think about the nature of the self? In particular, is your decision affected by the extent to which you think your future self will be the same person as your current self? Philosophers from different traditions have suggested that considerations about the persistence of the self *should* impact your generosity to others (Collins, 1982; Goodman, 2002; Parfit, 1984). In this article we examine whether generosity is actually affected by how people think about the persistence of the self.

Generosity is often studied in the context of self-interest models of rational behavior. Much human behavior can be understood as rational attempts to maximize self-interest. People choose more rather than less of things that they desire, like money; they choose less rather than more of things they don't want, like pain. These decisions are

naturally understood as seeking to maximize what the agent wants for herself—her self-regarding desires. A self-interest model also explains many morally problematic behaviors. Self-interested behavior likely contributes to global problems like pollution and overpopulation (Hardin, 1968). On a less grand scale, self-interest also explains observed patterns of allocations in economic games (Camerer, 2003). In these cases, people allocate more of a shared resource (usually money) to themselves, presumably because they care more about their own interests than they do about the interests of the other person. Ironically, self-interest models have also been used to explain prosocial behaviors, like generosity. For example, charitable giving has been explained in terms of self-interest by factoring in the rewarding “warm glow” response often associated with pro-social behavior (Andreoni, 1990). Despite a wealth of work on self-interest in psychology and economics, there is little work on the role of the *self* in self-interest. Is it possible to make people less self-interested by getting them to think differently about the self?

There is considerable variance in the views people have about the extent to which the self changes over time. In particular, people have different views about the degree of *connectedness* – the persistence of memories,

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convictions, values, ambitions, etc.—between one's current and future self. Prior research shows that how people think about connectedness between the current and future self affects economic decisions that involve tradeoffs between the current and future self (Bartels & Rips, 2010; Ernsner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009). Our studies explore whether people will be more generous to *others* as a function of how connected they feel to the person they will be in a year.

According to a prominent line of thought in philosophical ethics, if one judges one's current self to be only weakly connected to one's future self, this should make one assign less weight to the interests of one's future self; consequently the interests of others should take on a relatively higher weight in one's decision making. The idea here has roots in the Buddhist idea that there is no soul-like self (Harvey 2000), but the most influential contemporary development of these ideas comes from Derek Parfit. Parfit maintains that because there is no soul-like self, the continuity of self is a matter of degree of connectedness (1973, p. 140). One's current connections to the present self are a kind of limit case—the connections are maximal (1973, p. 147). But as time passes, those connections become weaker, and as one contemplates a distant future self, one is contemplating a person with weak connectedness to the current self.

Parfit maintains that coming to believe that the self changes across time led him to become more concerned about the welfare of other people: "There is still a difference between my life and the lives of other people. But the difference is less. Other people are closer. I am less concerned about the rest of my own life and more concerned about the lives of others" (1984). Further, if what really matters to us are psychological characteristics, then we might find that generosity to others will be a function not just of how connected one feels to one's future self but also of the extent to which one judges the potential *recipient* as psychologically overlapping with one's present self.¹

Of course, it is far from clear that people will react to beliefs about the mutability of self in the ways suggested by philosophers. In the first place, what philosophers claim is that the normatively correct reaction to coming to believe in the mutability of self is to have greater concern for others. When we turn to predicting behavior, it is obviously a substantive assumption that people will behave in normatively appropriate ways in interpersonal interactions. After all, there is considerable evidence for self-serving biases in interpersonal judgment and decision making (e.g. Greenberg, 1983; Loewenstein, Issacharoff, Camerer, & Babcock, 1993; Messick & Sentis, 1979; Ross & Sicoly, 1979). Moreover, even if I think that the connection between my current and future self is attenuated, I might think that my connection to my future self still dwarfs

my connection to any other person. Thinking about others might make especially salient the myriad *differences* between others and myself, and this might counteract any inclination to greater generosity. Thus, it's essential to investigate whether people really do react in interpersonal contexts as predicted by normative models of the role of connectedness in self-interest. Furthermore, given the social significance of charitable giving, it is important to explore the extent to which beliefs about connectedness impact behavior in that domain. Although there is an extensive literature on charitable giving (e.g., Andreoni, 2001; Bekkers & Wiepking, 2007; Oppenheimer & Olivola, 2010), there has been no work on how beliefs about the persistence of the self might affect charitable behavior.

2. Present studies

In the research presented here, we investigate whether people will be more generous to others as a function of how connected they feel to the person they will be in a year. In our research, connectedness is defined as the proportion of the defining psychological features of the current self that persist in the self that will exist in the future. Thus, an individual who anticipates stability in these features is judging that she will be more connected to his future self than an individual who expects these important properties of the self to vary over time.

We hypothesized that people who thought they would change over the next year would care less about that future self's welfare and be relatively more concerned about the interests of others. The idea is that when people feel disconnected from the future self, this reduces their concern about the future self, allowing for the welfare of others to take a more prominent role in their decision making. Furthermore, if people also care about the psychological characteristics they share with others, then this reduction in concern for the future self might facilitate greater generosity to others who share characteristics with the present self. Across four studies, we show that measured (Studies 1 and 4) and manipulated (Studies 2 and 3) beliefs about connectedness to the future self are associated with increased generosity.

3. Study 1

In Studies 1–3, we used real monetary stakes to test how views about the connectedness of self predict behavior on an incentive-compatible dictator-game-style charitable giving task (Eckel & Grossman, 1996; Konow, 2009; Starmer & Sugden, 1991). In these studies, participants logged on to a website and completed a questionnaire assessing their beliefs about connectedness and were told that they had been entered into a lottery in which they had a 25% chance of winning \$6. Participants were asked to decide how much of their potential winnings they would like to donate to a charity (*Save the Children*). In one condition, the charity allocation is slated to happen in a week; in the other condition, the allocation is slated to happen in a year. We expected that participants who feel highly connected with the self in a year would choose

¹ This proposal applies when we have independent motivation to enhance the welfare of others, which we assume obtains in many situations. For example, if people were given a choice between having \$5 destroyed or given to a charity that works to help starving children, we expect that people would want the money to go to the charity. In other special cases, where the money would instead go to a charity that is repugnant to the participant, she would prefer to have the money destroyed rather than directed to the charity.

to keep more of the money for themselves, but that those who feel disconnected would give more to the charity when the allocation happens in a year.

In study 1, participants first made their allocation decision and then rated the degree of connectedness to the person they would be in a year. We predicted that when participants were asked to donate money in a week, their donation decisions would not correlate with beliefs about connectedness to the future self (a high degree of personal change would plausibly take more than a week). However, we predicted that when participants were asked to make decisions about an event occurring in one year, they would choose to donate less as their belief in the degree of connectedness to their future self increased.

3.1. Participants and procedures

One hundred twenty-eight adult participants were recruited from an online panel (Amazon's Mechanical Turk) to complete a short survey in return for a nominal cash payment plus a possible bonus payment. Three participants failed an attention check, leaving a final sample of 125 participants (63% female, mean age = 36.71, $SD = 13.34$) for all analyses.

Study 1 was designed as a correlational study to examine whether a relationship exists between generosity and beliefs about the connectedness to the future self. Participants read a passage describing the mission statement for a charity (Save the Children) and were informed that by participating, they had been entered into a lottery to receive a \$6 bonus payment, either in a week or in a year ($N_s = 63$ and 62). Participants were instructed that one quarter of surveys would be selected to receive bonus money, and that they could donate some or all of the money to the charity and/or keep all of it for themselves if they were selected. They then chose an allocation from a set of 13, ranging from sending \$6 to the charity (\$0 to the self) to the reverse, in 50-cent increments. Next, we asked participants to “think about the important characteristics that make you the person you are now” and to rate connectedness to the person they would be in a year on two scales (see Appendix A; $M_{0-100 \text{ scale}} = 74.0, SD = 21.9$; $M_{\text{line scale}} = 78.9, SD = 16.5$). We z-scored responses on these two highly correlated scales ($r = .75, p < .001$) and used the average of these z-scores as our index of connectedness. Finally, participants answered a number of demographic questions, including age, race, gender, marital status, religious affiliation, and income level. Including demographic variables in our analyses as covariates does not change the pattern of results we observe in any of the studies.

3.2. Results and discussion

To assess the relationship between generosity and future-self connectedness, we began by conducting correlational analyses separately for the year and week conditions. As expected, giving was significantly correlated with rated connectedness in the year condition ($r = -.26, p < .05$) but not in the week condition ($r = .04, p = .78$). We also conducted a regression in which a dummy variable for the timing condition (year versus week) and the

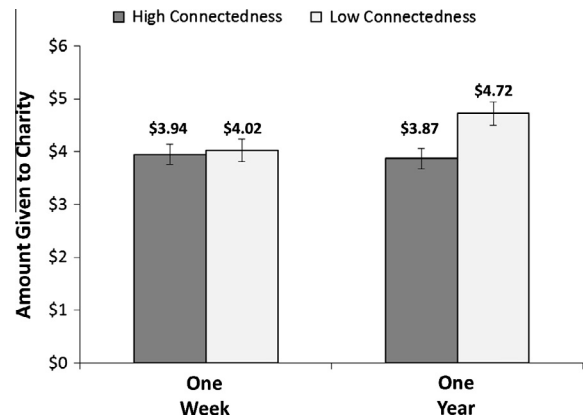


Fig. 1. Amount allocated to charity (\pm one SE) by connectedness (High versus Low) and timing of the allocation (happening in a Week versus a Year) in Study 1. These data are estimated marginal means (High is one SD above the mean in measured connectedness, Low is one SD below the mean).

combined connectedness scores were used to predict donations to the charity. Both of the continuous variables (connectedness and donations) were z-scored before being entered into the regression to facilitate interpretation of the coefficients. This analysis revealed a main effect of timing—participants gave more in the year condition ($M = 4.36$ [out of \$6], $SD = 1.16$) than in the week condition ($M = 3.91$, $SD = 1.07$; $\beta = 0.21, t(122) = 2.37, p < .05$)—no effect of measured connectedness ($\beta = -0.14, t(122) = -1.46, p = .15$), and a marginal interaction ($\beta = -0.17, t(122) = -1.81, p = .07$), which confirms the differential correlations between connectedness and giving for allocations made in a week versus a year. (See Fig. 1 and Appendix C for a supplementary analysis.)

Study 1 suggests that as people regard themselves as less connected to the future self, they give more generously when making decisions about the future.² However, a possible limitation of this study is that its correlational design allows for reverse causation or for a third variable to determine the relationship between connectedness and giving. The next study addresses these issues by using an experimental design.

4. Study 2

In Study 2, we manipulated participants' beliefs about connectedness. We induced high or low connectedness with the future self by having participants read a passage describing some research suggesting that people's personal characteristics change or remain stable over time (Bartels

² As noted in the introduction, the prediction that people should behave more generously toward others tested here applies in cases where there is some standing motivation to benefit others. Although the allocation tasks we use in the current studies are all zero sum—so that giving more to others necessarily means allocating less to the future self—our framework does not entail an assumption about bounded generosity or a kind of conservation of giving. That is, in all of our cases we test competing interests (i.e., in benefiting others versus the future self) for a fixed pool of resources, but in special cases where interests are not competing or where resources are unbounded, other patterns are possible.

& Urminsky, 2011). After the manipulation, participants read that they might receive a bonus in either a week or a year, and they could allocate any portion of this bonus to a charity (*Save the Children*). We predicted that when participants were asked to make donation decisions in the relatively near future there would be no difference between participants in the high and low connectedness conditions. By contrast, we predicted that when participants were asked to make decisions about the more distant future, participants in the low-connectedness condition would donate relatively more than those in the high-connectedness condition.

4.1. Participants and procedures

One hundred fifty-nine adult participants were recruited from an online panel (Amazon's Mechanical Turk) to complete a short survey in return for a nominal cash payment plus a possible bonus payment. Four participants failed an attention check, leaving a final sample of 155 (59% female, mean age = 34.58, $SD = 12.60$) used for all analyses.

In Study 2, we employed a 2 (future self connectedness: high or low) \times 2 (allocation time: week or year) between-subject design with donation amount as the primary dependent variable of interest. We crossed whether the allocation (between one's future self and a charity) was slated to happen in a week or a year with manipulations of connectedness drawn from Bartels and Urminsky (2011). The connectedness manipulation had two parts: First, participants in the high (low) connectedness conditions were asked to estimate the ease with which they could generate either two (in the high connectedness condition, $N = 77$) or ten (in the low connectedness condition, $N = 78$) reasons why their own identity would remain very stable over the next year. We expected that participants asked for two reasons would find the task easy, and therefore have no reason to doubt the stability of their identity, whereas those asked for ten reasons would experience difficulty generating the reasons, and would therefore interpret this experience as evidence of lower connectedness to future selves. Next, participants in the high (low) connectedness condition read a passage describing some research which suggested that people's personal characteristics remain stable (change) over time. A manipulation check verified that our manipulations significantly affected beliefs about connectedness, $t = 6.09, p < .001$. Participants then rated connectedness as participants did in Study 1 before making the same decision about how to allocate bonus money they might receive and answering demographic questions.

4.2. Results and discussion

To assess whether manipulated future-self connectedness influenced giving behavior, we conducted a 2 (time: year versus week) \times 2 (connectedness: high versus low) analysis of variance. This analysis revealed main effects of timing (week versus year) and connectedness ($F(1,151) = 10.56$ and $6.10, ps < .05$) and most importantly, the predicted interaction ($F(1,151) = 5.52, p < .05$). As pre-

dicted, there was no difference between allocations when the allocation was slated for a week ($t < 1$), but when the allocation was to take place in a year, those in the low-connectedness condition gave significantly more to the charity ($t(77) = 3.74, p < .001$; see Fig. 2 for means.).

Study 2 shows that people behave more charitably when they think that the self changes considerably across time. Although the experimental procedure of Study 2 allows for causal inference, the manipulation of connectedness may have had unknown effects on other variables that could influence charitable giving. The next study was run to assess the contribution of several factors to the patterns of giving that we observe.

5. Study 3

To address some potential limitations and alternative explanations for Study 2's findings, Study 3 replicates the methods of Study 2 but also measures several additional variables. Here again, our prediction is that people who are induced to feel less connected to the future self will place lesser value on the welfare of that future self, and this difference will lead to greater generosity toward others in a year, as compared to those who are induced to feel more connected to their future self. To more directly test this hypothesis, Study 3 includes a measure of temporal discounting—a measure of how much future outcomes for the self are valued relative to current outcomes. Previous studies have shown that manipulating connectedness changes the level of "patience" that people express on time-money tradeoffs like choosing to receive \$100 today versus \$120 in a year (Bartels & Urminsky, 2011). People made to feel less connected to the future self discount the value of delayed outcomes (to be enjoyed by that disconnected future self) more than people who are made to feel more connected to the future self. In particular, people who feel highly connected are closer to indifferent between the interests of the current and future self, whereas people made to feel disconnected show "intertemporal selfishness" strongly preferring the interests of the current over the future self. In light of this, we predicted that less connected people would show higher rates of tem-

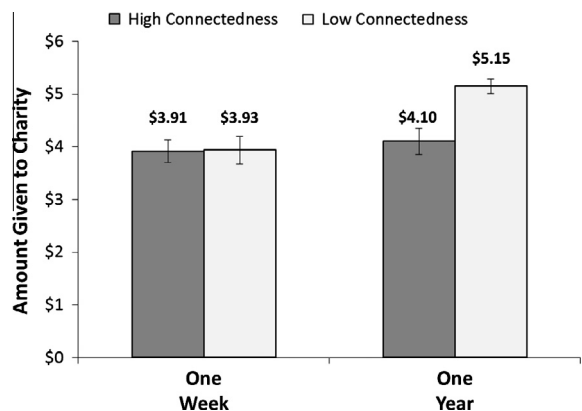


Fig. 2. Average amount allocated to charity (\pm one SEM) by Connectedness (High versus Low) and timing of the allocation (happening in a Week versus a Year) in Study 2.

poral (i.e., intrapersonal) discounting and thus be more willing to give money to others in the future. In other words, generosity to others in a year should be inversely related to the patience that people express on these measures.

However, it is also possible that our manipulation of connectedness might affect giving through other factors. First, manipulating connectedness could change people's beliefs about their investment ability, and this might affect their beliefs about their effectiveness of investing money (rather than donating it) for a high return, yielding more to donate in the future. Second, it is possible that our low connectedness participants were led to believe, via the manipulation of connectedness, that some of their tastes and preferences will be different in the future. When people do not project their current tastes onto a later self, they might choose to consume some outcomes sooner, rather than later, because the delayed benefits (e.g., keeping more money for oneself) might not fit the future self's taste as well as it fits the current self's tastes. Finally, manipulating connectedness may affect people's reputational concerns, which might be a factor in research that has shown that higher ratings of connectedness have been associated with fewer unethical behaviors directed toward others (Hershfield, Cohen, & Thompson, 2012).³ So, in Study 3, we measure people's beliefs about investment ability, anticipated preference change, and perceived importance of reputational concern.

In addition to measuring the influence of these additional factors, Study 3 also accounts for the variance in our dependent variable that is attributable to several covariates that have been linked to charitable giving in prior work. Previous research has shown that charitable giving is predicted by measures of (i) interpersonal responsiveness (Verhaert & Van den Poel, 2011) and (ii) altruism (Harbaugh, Mayr, & Burghart, 2007). Also, people's decisions about how to spend their future time and money have been shown to vary along with people's anticipation of additional disposable time and money and/or the under-appreciation of future demands on their time and money (Pronin, Olivola, & Kennedy, 2008; Zauberman & Lynch, 2005). So, Study 3 includes measures of each of these variables in addition to the others to provide a fuller account of the influences of these and our focal variable—regard for the future self—on giving.

We collected data in two waves to alleviate potential concerns about biased responding. In the first wave, we collected covariate measures that have been related to altruism and charitable giving in previous research. In the second wave, at least two weeks later, we used an experimental procedure similar to Study 2 and also measure temporal (i.e., intrapersonal) discounting.

5.1. Participants and procedures

Wave One. Study 3 collected data in two waves. One hundred eighty-six Columbia University undergraduates participated in the first wave, in which we collected information on interpersonal responsiveness, altruism, age, and gender. Each participant was brought into a laboratory and

completed the survey at his or her own pace. They were tested individually but in a small-group setting (typically one to four participants per session). Usually, other participants were completing the study at their own pace in the same room. Each received \$4 for participating. To avoid any polluting effects of measuring altruistic and empathetic tendencies on our measure of charitable giving, we introduced a delay of more than two weeks between participation in the first and second waves of data collection.

Wave Two. Two to three weeks after participating in the first wave, participants were invited over email to participate in a second, web-based follow-up study. One hundred forty of them participated (69% female, mean age = 22.39, $SD = 4.53$), and each received \$4. The participants who completed both waves do not differ on any of the variables measured during the first wave (all $t_s < 1$), nor does any linear combination of the first wave variables predict participation in the second wave, suggesting that selective attrition effects are not a major concern for this study.

As noted, in the first wave, in addition to collecting age and gender, we measured interpersonal responsiveness and altruism, using the interpersonal reactivity index (IRI, Davis, 1983), which consists of four subscales: empathic concern, fantasy situations, personal distress, and perspective-taking. We also measured altruism using the Personal Altruism Level (PAL) scale (Tankersley, Stowe, & Huettel, 2007), which consists of two subscales: altruism expressed to friends and altruism expressed to strangers. All six subscales of these constructs were entered as covariates in an analysis we report below.

The second wave was identical to the methods of Study 2 except for one change and the additions noted below. Study 3 used the same 2 (future self connectedness: high or low) \times 2 (allocation time: week or year) between-subject design with donation amount as the primary dependent variable of interest as used in Study 2, with one change and several additions noted below. The change was that Study 3 manipulated connectedness using only the information-based method, omitting the fluency-based method from Study 2 ($N_s = 70$ in the high and low connectedness conditions). After the connectedness manipulation, participants rated connectedness and made their decision about how to allocate bonus money that they might receive in a week ($N = 69$) versus a year ($N = 71$).

In the next part of the task, we presented participants with four discounting tasks involving choices between receiving smaller amounts of money tomorrow versus larger amounts of money in a year. For example, in one of these four tasks, participants were asked whether they would rather \$260 tomorrow versus each of eight values (\$260, \$312, \$364, \$416, \$468, \$520, \$572, and \$624) in a year. (See Appendix B.) Our measure of discounting was the number of later alternatives that each participant chose across the four tasks. So, a participant with a smaller (larger) value is a person who is less (more) willing to wait, consistent with the idea that she strongly (less strongly) favors the interests of her current self over her future self.

Finally, we collected measures relating to the alternative explanations noted earlier: investment ability, anticipated preference change, and reputational concern. We also included covariates that have been linked to decisions

³ We thank a reviewer for raising these three possibilities.

about future time and money use: anticipated changes in disposable time and money, and anticipated future demands on time and money. (See Appendix B.)

5.2. Results and discussion

Effects of connectedness and timing on charitable giving.

To assess whether manipulated future-self connectedness influenced giving behavior, we conducted a 2 (time: year versus week) \times 2 (connectedness: high versus low) analysis of variance. This analysis revealed the predicted interaction ($F(1,136) = 5.76, p < .05$), but no main effects of either timing or connectedness ($F_s < 1$). As predicted, there was no difference between allocations when the allocation was slated for a week ($t(67) = -1.03, p = .31$), but when the allocation was to take place in a year, those in the low-connectedness condition gave significantly more to the charity ($t(69) = 2.36, p < .05$; see Fig. 3 for means). Again, people behaved more charitably when they thought that the self changes considerably across time, replicating the results of Studies 1 and 2.

Effects of discounting one's future welfare on charitable giving.

Our contention is that making people feel disconnected from the future self reduces their concern about the future self, allowing for the welfare of others to take a more prominent role in their decision making. In the first three studies, we have shown that reducing connectedness increases the level of giving in a year. Here, we examine whether this reduction in connectedness produces the relative devaluation of the future self's welfare that we propose and whether this devaluation results in increased giving to charity.

First, to assess the relationship between connectedness and the valuation of the current versus the future self, we compared the patience we observed in our discounting tasks (i.e., the number of delayed alternatives chosen, where choosing more indicates less devaluation of the future self) across connectedness conditions. People made to feel disconnected from the future self discounted the future self's outcomes more (i.e., chose fewer delayed rewards; $M = 18.03, SD = 5.29$) than participants who were

made to feel more connected to the future self ($M = 21.63, SD = 6.43, t(138) = -3.62, p < .001$, replicating Bartels & Urminsky, 2011).

Second, to assess the relationship between generosity and people's valuation of their own current versus future self's welfare (as measured by our temporal discounting measures), we began by conducting correlational analyses separately for the year and week conditions. We predicted that the more people valued their current self's interests over their future self's interests (i.e., the fewer delayed alternatives they chose on our measures), the more they would share with Save the Children in a year. Indeed, giving was significantly negatively correlated with discounting in the year condition ($r = -.30, p < .05$) but not in the week condition ($r = .04, p = .78$). We also conducted an ANCOVA in which timing (week or year), discounting, and their interaction were used to predict donations to the charity. This analysis revealed a main effect of discounting—participants gave more when they devalued the future self ($F(1,136) = 4.28, p < .05$), no effect of timing ($F < 1$), and a marginal interaction ($F(1,136) = 3.03, p = .08$). As people are more likely to disregard the welfare of their selves in a year, they give more generously when making decisions about the future.

Assessing the strength of additional influences on charitable giving.

First, we examined the degree to which perceived investment ability, anticipated preference change, and reputational concern are drivers of the effects observed in these studies. Perceived investment ability and reputational concern were neither significantly correlated with levels of charitable giving ($r_s = -.14$ and $.02, p_s = .11$ and $.80$), nor changed by the connectedness manipulation in Study 3 ($t_s(138) = 1.05$ and $0.85, p_s = .29$ and $.39$). Anticipated preference change was manipulated along with connectedness, such that people in the high connectedness conditions anticipated less preference change than participants in the low connectedness conditions ($M_s = 2.81$ versus $3.54, SD_s = 1.38$ versus $1.39; t(138) = 3.12, p < .01$, consistent with Bartels & Urminsky, 2011), but anticipated preference change did not correlate with giving ($r = .03, p = .70$).

Second, we ran an augmented version of our main analysis, regressing the amount given to charity on a dummy variable for the timing of the allocation (year versus week), connectedness (high versus low), their interaction, and ten continuous covariates (the four subscales of the interpersonal reactivity index, the two subscales of the altruism measure, two items measuring anticipated changes in disposable time and money, and two measuring anticipated changes in time and money demands). All of the continuous variables were z-scored before being entered into the regression to facilitate interpretation of the coefficients. This analysis finds only the predicted interaction between connectedness and the timing of the allocation ($\beta = .22, t(126) = 2.61, p < .05$; see Table 1). As can be seen in the last column of Table 2, which shows the correlation between the measured variables in this analysis, four of the variables are correlated with giving when considered separately (empathic concern, fantasy situations, altruism to friends, and altruism to strangers), and several of the measured predictor variables correlate with each other. However, as can be seen in the third column of Table 1,

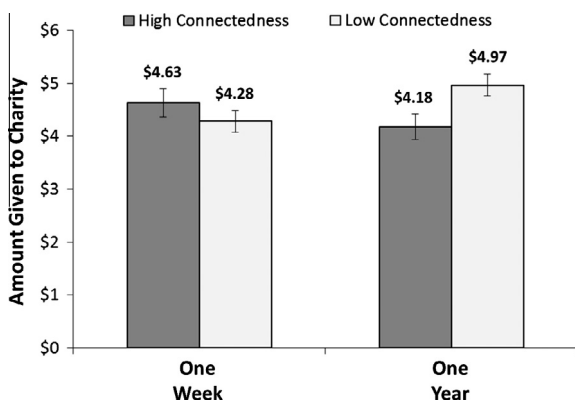


Fig. 3. Average amount allocated to charity (\pm one SEM) by connectedness (High versus Low) and timing of the allocation (happening in a Week versus a Year) in Study 3.

Table 1
Study 3 regression table.

Factor	β	$t(126)$	VIF
Connectedness	−0.05	<1	1.16
Timing	−0.06	<1	1.09
Connectedness* timing	0.22	−2.61**	1.07
Empathic concern	0.18	1.72†	1.55
Fantasy situations	0.07	<1	1.21
Personal distress	0.00	<1	1.30
Perspective taking	0.02	<1	1.46
Altruism to friends	0.10	<1	1.55
Altruism to strangers	0.03	<1	1.53
Future extra money	0.04	<1	1.18
Future extra time	0.00	<1	1.11
Future money demands	0.09	1.03	1.05
Future time demands	0.08	<1	1.20

† $p < .10$.

* $p < .05$.

** $p < .01$.

only the association between empathic concern and giving (i.e., that those who feel more concern give more) sustains when considering all of these variables together. Moreover, the fourth column of Table 1 suggests that these results are not substantially affected by multicollinearity.

Taken together, the results of Study 3 suggest that connectedness affects the way that people make decisions about sharing with others in the future by changing the relative valuation of one's future welfare: Caring less about the future self can translate to sharing with others in the future. Moreover, Study 3 tested the role of regard for the future self in generosity toward others, alongside several other potentially explanatory variables and found the strongest support for the interaction of variables stipulated by our theoretical framework.

Table 2
Correlation among measured variables in Study 3 regression.

	Fantasy situations	Personal distress	Perspective taking	Altruism to friends	Altruism to strangers	Future extra money	Future extra time	Future money demands	Future time demands	Giving
Empathic concern	0.21*	−0.01	0.43**	0.41**	0.36**	0	0.1	0.03	0.05	.25**
Fantasy situations	–	0.11	0.09	0.23**	0.26**	0.07	0.12	0.09	0.18*	0.18*
Personal distress	–	–	−0.29**	−0.1	−0.08	0.24**	0.16	−0.04	−0.16	−0.06
Perspective taking	–	–	–	0.22**	0.27**	0	−0.02	−0.01	0.13	0.13
Altruism to friends	–	–	–	–	0.52**	0	−0.05	0.08	0.23**	0.23**
Altruism to strangers	–	–	–	–	–	−0.05	−0.01	0.12	0.24**	0.21*
Future extra money	–	–	–	–	–	–	0.13	0	−0.14	0.03
Future extra time	–	–	–	–	–	–	–	0	−0.20*	0
Future money demands	–	–	–	–	–	–	–	–	0.05	0.09
Future time demands	–	–	–	–	–	–	–	–	–	0.13

† $p < .10$.

* $p < .05$.

** $p < .01$.

Thus far, we have tested the idea that perceived reductions in connectedness with the future self over time would lead to caring less about the future self's welfare and relatively more about the interests of others. Studies 1 through 3 hold the target of generosity constant and measure or manipulate the perceived psychological overlap with the future self at a fixed point in time (i.e., in a year). A further question is whether overlap of psychological characteristics with a candidate recipient is also important for generosity.

6. Study 4

As we've seen in studies 1–3, believing that the future self is disconnected from the current self increases generosity. But there is a further question about connectedness and generosity: does connectedness *between individuals* matter? In Study 4, we test whether giving to others depends not only on perceived connectedness to the future self, but also on the extent to which one judges the potential recipient of one's generosity as psychologically overlapping with one's present self.

Previous work indicates that generosity to others depends, in part, on the perceived social distance to them. Jones and Rachlin (2006) asked participants to think of the 100 people closest to themselves, and then asked participants whether they would prefer to keep a lump sum of money (varying from \$75 to \$155) for themselves or to keep \$75 and share \$75 with selected target persons from the list. Generosity decreased hyperbolically across social space, drawing a striking parallel with temporal discounting. Separately, Bartels and Rips (2010) showed that changes in rated connectedness to the future self decrease

over time, and that these changes in connectedness predict people's changing discount rates (often referred to as "hyperbolic discounting" or "declining impatience"). These results, taken in conjunction with studies 1–3, suggest that the decision to behave generously may involve both future-self connectedness and social connectedness to the recipient of one's generosity. Study 4 was conducted to better understand how the dynamic relationship between social distance and future-self connectedness is involved in generous behavior.

Study 4 tests the prediction that when people feel substantially more connected to others (in the present) than to their future self, they will intend to be more generous (i.e., share more resources) than when they feel substantially more connected to their future selves. To address this question, participants were asked to "provide a list of the 10 people closest to you in the world, ranging from your dearest friend at position 1 to a person at position 10 who could be a mere acquaintance." They were instructed not to list partners or children. Then, in two tasks, which were separated by a delay of more than two weeks, they (i) rated how connected they felt with their future selves (i.e., the person they would be in one, two, five, ten, 20, 30, 40, and 50 years) and with each person on their list in the present and (ii) were asked how they would distribute money between one of their future selves and one of the people from their list (i.e., money is split between one of your friends *now* and you in the *future*). We predicted that as connectedness to another person exceeded connectedness to the future self, generosity would increase.

6.1. Participants and procedures

Wave One. Study 4 collected data in two phases. A community sample of 199 (32.7% female, mean age = 32.03, $SD = 13.83$) adults were recruited through flyers and an email listserv maintained by the University of Chicago. Participants were brought into an off-campus laboratory in downtown Chicago and completed the survey at his or her own pace. They were tested individually but in a small-group setting (typically one to four participants per session). Usually, other participants were completing the study at their own pace in the same room. Each received \$3 for participating.

In this first wave, participants were asked to list the ten people closest to them. Next, 100 participants were randomly assigned to either rate their connectedness to these ten others and to their future selves at several future points in time (in two blocks of ratings, one using the 0–100 scale and one using the line scale used in Study 3). The other 99 participants were asked to make 21 decisions, in random order, about how they would distribute a sum of \$155 between one of their future selves and people from their list (see Table 3 for the items). Finally, participants answered several demographic questions.

Wave Two. All of the participants from wave one received an invitation over email, two to three weeks later, to participate in a second, web-based follow-up study in exchange for \$3. Of our initial 199 participants, 85 returned to complete phase 2. Of this 85, eleven participants failed an attention check, and five more were removed for failure

Table 3

Mean connectedness difference scores from pilot study.

Contrast	Mean connectedness difference (other minus self)	Pilot prediction
Other #1 versus Self in 30 years	20.4	Other
Other #1 versus Self in 20 years	15.1	Other
Other #2 versus Self in 40 years	14.3	Other
Other #2 versus Self in 30 years	10.9	Other
Other #3 versus Self in 40 years	10.5	Other
Other #3 versus Self in 30 years	7.1	Other
Other #2 versus Self in 20 years	5.6	Other
Other #5 versus Self in 50 years	4.5	Other
Other #6 versus Self in 50 years	1.8	Other
Other #6 versus Self in 40 years	−3.0	Self
Other #5 versus Self in 30 years	−3.8	Self
Other #9 versus Self in 50 years	−4.7	Self
Other #7 versus Self in 40 years	−5.7	Self
Other #6 versus Self in 30 years	−6.4	Self
Other #3 versus Self in 5 years	−7.0	Self
Other #5 versus Self in 20 years	−9.1	Self
Other #2 versus Self in 2 years	−9.2	Self
Other #10 versus Self in 50 years	−11.2	Self
Other #2 versus Self in 1 year	−11.7	Self
Other #6 versus Self in 20 years	−11.7	Self
Other #3 versus Self in 2 years	−13.0	Self

to follow instructions⁴, leaving a final sample of 68 participants used for analyses. In this second wave, those who had completed the ratings (allocation) task in the first wave now completed the allocation (rating) task. (See Table 3)

6.2. Results and discussion

⁴ Five participants misunderstood the instruction to list the names of close others (e.g., they left fields blank or listed social roles, like "brother" or "friend"). We excluded participants who left fields blank and those who made duplicate entries—for example, listing "brother" at positions two and eight—because later in the study, when participants are asked to rate connectedness or to make allocation decisions, it would be impossible for them to know whether the rating or allocation concerned "brother" from position two or eight. Two independent coders were presented with participant's entries for the ten fields and asked to judge "Could this be a list of ten unique identifiers (names or social roles) for ten people, with no repeats?" for all the participants who completed both waves of Study 4. The coders answered "Yes", "No", or "Maybe" and agreed in 99.2% of cases. In six cases, the coders agreed that the entries were not unique identifiers. One of these six had already been excluded for failing the attention check.

We found that feeling more connected to another person than to one's future self significantly predicts giving. For each of the 21 decisions, we calculated a connectedness difference score for each decision by subtracting the future-self from the other connectedness rating. Positive scores indicate more connectedness to other than to the future self and vice versa. As can be seen in Fig. 5, higher difference scores correlated with increased generosity when collapsed across participants and compared using the average response given for each of the 21 decisions ($r = .71, p < .001$). (See Fig. 4)

We also tested whether people were more generous on trials in which we expected them to be more connected to the other individual than to the self (on the basis of our pretest, see Table 3 for predictions). We also wanted to account for any differences observed across participants who rated connectedness first versus those who made allocation decisions first, in wave one of data collection. For each participant, we calculated the average amount she gave for "other favoring" choice trials and compared it to the average amount she gave for "future-self-favoring" trials. A 2×2 mixed-model ANOVA, with task order (ratings-first versus allocations-first) as a between-subjects factor and choice type (other-favoring versus future-self-favoring) as a repeated measure found a main effect of trial type ($F(1,66) = 40.24, p < .001$) which was comparatively large in effect size ($\eta_p^2 = 0.38$), no main effect of task order ($F < 1$), and an unpredicted interaction ($F(1,66) = 4.45, p < .05$) which was smaller in effect size ($\eta_p^2 = 0.06$) than the effect of choice type. (See Fig. 5 for means.) Planned contrasts verified that participants gave significantly more on other-favoring choice trials than on the future-self favoring trials in both the ratings-first and allocations-first conditions (paired- $t(30) = 3.55, p < .001$ for the ratings-first condition, and paired- $t(36) = 5.12, p < .001$ for the allocations-first condition). It appears that task order moderated the size of the effect but not its direction.

Next, we calculated the correlation between difference scores and the amount given for each decision separately for the ratings-first and allocations-first conditions.⁵ The median of the within-subjects correlations in both conditions was significantly greater than zero (Median = 0.10, $W = 115.5, p < .01$; mean Fisher transformed r -to- $z = 0.10$, one-sample $t(28) = 2.68, p < .05$ for the ratings-first condition; Median = 0.34, $W = 224.5, p < .001$; mean Fisher transformed r -to- $z = 0.36$, one-sample $t(32) = 5.59, p < .001$ for the allocations-first condition). We report additional supplementary analyses and a replication study in Appendix C.

We did not anticipate the interaction with task order observed in the ANOVA reported above, but in trying to interpret this interaction, we noted that both means presented in Fig. 5 for the ratings-first condition lie between the means for the allocations-first condition. To assess whether the differences observed across conditions was due to participants using the scale of allocation or connectedness rating tasks differently, we rank-transformed each

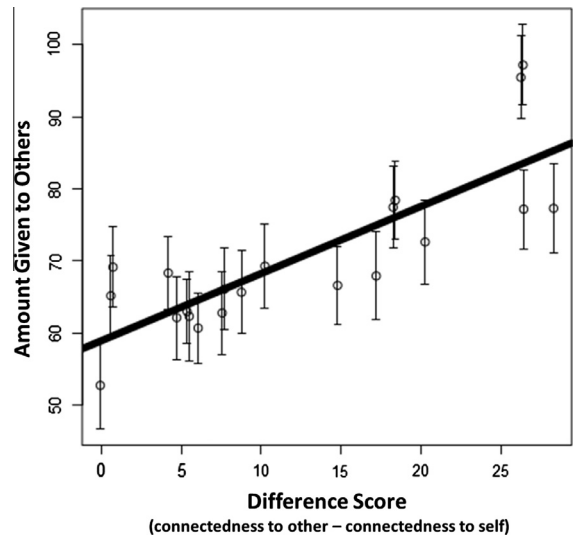


Fig. 4. Average amount given (\pm one SEM) for each of the 21 decisions in Study 4 as a function of the average difference score observed (rated connectedness to other minus rated connectedness to the future self).

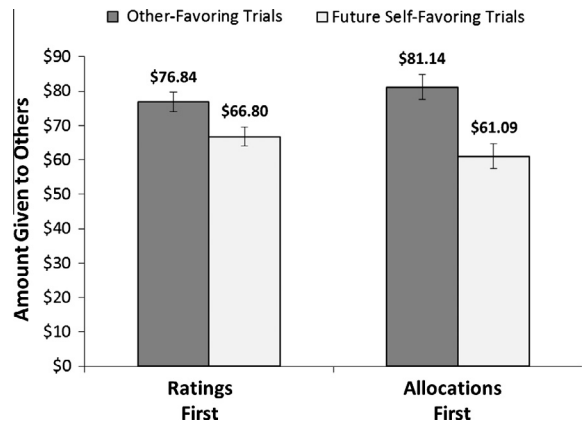


Fig. 5. Average amount given to others (\pm one SEM) for other-favoring trials and future self-favoring trials as a function of task order in Study 4.

variable for each participant and computed within-subjects rank correlation coefficients (Spearman's ρ). The observed ρ s were significantly greater than zero in each condition and did not differ significantly across conditions ($M_s = .14$ and $.25, SD_s = .29$ and $.32$ for the ratings-first and allocations-first conditions, $t(60) = 1.41, p = .17$). Recall that ratings-first participants gave their ratings in the laboratory and did the allocation task online later, and vice versa for the allocation-first participants. This analysis of rank correlations shows that, after accounting for scaling differences across the conditions, perhaps due to differences in the testing context, the difference in the size of the effect observed here is attenuated.

Study 4 finds that the perceived connectedness with the targets of generosity matters for how much generosity people express. Specifically, when a person perceives that a close other shares more overlap with her in the present than one of her future selves, she shares more with that

⁵ These analyses, and only these analyses, omit six of the 68 participants for whom within-subjects correlations were undefined because of zero variance in the amount allocated across the 21 decisions ($N = 5$) or zero variance in connectedness ratings across targets ($N = 1$).

close other. All of Study 4's results show that feeling more connected to another than to one's future self is associated with greater giving. This study shows that people care about connectedness in a broader way than one might have expected. In making decisions about others, people gauge not just the extent to which they will change, but also the extent to which the recipient is psychologically similar to their current self.

7. General discussion

Our research aimed to explore how beliefs about the self were related to self-interested behavior. Across four studies, we have shown that decreased connectedness to the future self is both correlated with (Study 1) and causally related to (Studies 2 and 3) future charitable giving and is also related to generosity to other individuals (Study 4).

Previous work has shown that when people judge themselves to be less connected to their future self, they display more impatience on temporal discounting tasks (Bartels & Urminsky, 2011). Crudely, one might explain this phenomenon as a function of a person thinking that the future self will be *less me*. Insofar as I am making a choice based entirely on self-interest, the fact that the future self will be *less me* provides reason to care less about the interests of that future person. We wanted to investigate whether decisions about other people would also be affected by beliefs about connectedness. If the belief in low-connectedness leads people to care less about the interests of their future selves, does it make them care relatively more about the interests of others? According to prominent ethical traditions, coming to believe that the self changes significantly *should* lead to relatively greater concern for others. We found that people's decisions do, in fact, largely comport with the stipulations of these models. We measured (Study 1) and manipulated (Studies 2 and 3) beliefs about connectedness and found that believing that the future self is disconnected from the present self leads to increased generosity. Our explanation for this effect is that when the future self is regarded as disconnected, people place less weight on the interests of the future self. Study 3 supported this explanation by revealing the predicted relationship between discounting and generosity.

Our first three studies show that when people come to believe that the self changes significantly, they are more generous with others. Study 4 explored whether generosity is affected by how connected one feels with the potential recipient. Once again, we found that connectedness has a pronounced effect. The results of study 4 reveal that rather than being motivated purely by future-self connectedness or the perceived psychological overlap with an other, one's willingness to behave generously is determined by the relative levels of both of these variables at the moment of making a decision. Thus, generosity to others is best understood by taking account of both one's future self connectedness and one's connection to these others. The results point to practical implications insofar as a better understanding of beliefs about the future-self

may have benefits for the non-profit industry (Sargeant, Shang, & Shabbir, 2010). Careful field studies sensitive to potential donor's beliefs about the future self will be important in further exploring the application of these results to real world fundraising and charitable giving contexts. But the fact that people's generosity is affected by how they think about the self indicates a new potential avenue for increasing generosity, both to large scale charitable organizations and to the individuals we engage with on a day-to-day basis.

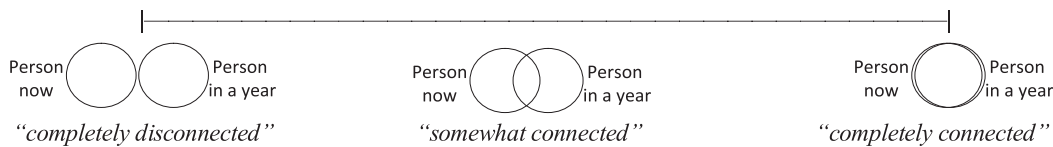
It is a recurring theme in philosophy that determining the nature of the self has implications for a wide range of issues. If one's past self is very different from one's present self, then one deserves less punishment for offenses of that past self (Parfit, 1973, 143; Tierney, Howard, Kumar, Kvaran, & Nichols, *in press*). If one's self changes radically across time, then one should be less concerned about the prospect of death in the distant future (Parfit, 1984, section 95). In this paper, we've explored another implication of thinking that the self changes a great deal. Insofar as the self changes, philosophers maintain that we should care less about the welfare of our future selves and relatively more about the welfare of others. Our studies indicate that ordinary people's behavior actually conforms to what might have seemed a rather abstract philosophical view. People's decisions about giving to others are significantly affected by their beliefs about the nature of the self.

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Appendix A. Connectedness measures

- 1) Please think about the important characteristics that make you the person you are now—your personality, temperament, major likes and dislikes, beliefs, values, ambitions, life goals, and ideals—and please rate the degree of connectedness between the person you expect to be in a year compared to the person you are now where 0 means “I will be completely different in the future” and 100 means “I will be exactly the same in the future.”
My rating is: _____
- 2) Please think again about these important characteristics and indicate your opinion about the degree of connectedness held between the person you are now and the person you will be in a year by clicking on the continuum below, where no overlap means “completely disconnected” and complete overlap means “completely connected”.



Appendix B. Additional measures used in Study 3

Discounting measures

Imagine that you have the option of receiving some money tomorrow, or one year from now. We will show you a series of such options, one in which you would receive money tomorrow and the other in which you would receive money in a year. In each row below, choose which ONE of the two options you would prefer to receive. Imagine that both payments are guaranteed to occur when promised.

Block 1:

- \$260 tomorrow ---- \$260 in one year
- \$260 tomorrow ---- \$312 in one year
- \$260 tomorrow ---- \$364 in one year
- \$260 tomorrow ---- \$416 in one year
- \$260 tomorrow ---- \$468 in one year
- \$260 tomorrow ---- \$520 in one year
- \$260 tomorrow ---- \$572 in one year
- \$260 tomorrow ---- \$624 in one year

Block 2 used \$40 tomorrow versus (\$158, \$141, \$124, \$107, \$90, \$73, \$57, \$40) in one year

Block 3 used \$260 tomorrow versus (\$429, \$405, \$381, \$357, \$332, \$308, \$284, \$260) in one year

Block 4 used \$40 tomorrow versus (\$40, \$56, \$71, \$87, \$103, \$119, \$134, \$150) in one year

Measures relating to alternative explanations

Perceived investment ability. I expect that I could invest the bonus payment now and earn a high return on the money. (1 = strongly disagree; 7 = strongly agree)

Anticipated preference change. Think about the person you expect to be in a year. How similar or different from your current preferences—your current likes and dislikes—do you think your future preferences will be one year from now? (1 = the same as now; 7 = completely different)

Reputational concern. How important to you are other people's opinions of you? (1 = not at all important; 7 = extremely important)

Measures of covariates linked to charitable giving and/or decisions about future time and money use

Interpersonal reactivity index (Davis, 1983)

Altruism scale (Tankersley et al., 2007)

Anticipated extra money. Compared to now, how much more or less spending money do you expect to have

in a year? (1 = much more spending money now; 7 = much more spending money in a year)

Anticipated extra time. Compared to now, how much more or less free time do you expect to have in a year? (1 = much more free time now; 7 = much more free time in a year)

Anticipated money demands. Compared to now, do you expect more or fewer demands and constraints on your financial resources in a year? (1 = many more demand and constraints on my money now; 7 = many more demands and constraints on my money in a year)

Anticipated time demands. Compared to now, do you expect more or fewer demands and constraints on your time in a year? (1 = many more demand and constraints on my time now; 7 = many more demands and constraints on my time in a year)

Appendix C. Supplementary analyses and results

Study 1

We also conducted a General Linear Model analysis using rank transformed data for connectedness scores and donations. Rank transformed data were used as a non-parametric alternative because of negatively skewed connectedness ratings. Previous research has shown rank transformation to be a robust and reliable alternative when violations of the traditional GLM are violated (Conover & Inman, 1982). In this model a dummy variable for the timing condition (week or year) and rank transformed connectedness scores were used to predict rank transformed offers to the charity. Consistent with our ANCOVA analysis, our rank-transformed analysis revealed a main effect of timing—participants gave more in a year (median rank = 76.5) than in a week (median rank = 54.5, $F(1, 122) = 5.12, p < .05$), no effect of connectedness, and a significant interaction between the two ($F(1, 122) = 5.60, p < .05$).

Study 4

In Study 4, a secondary analysis was conducted using a multilevel modeling approach in which connectedness difference scores and condition order (indicating whether participants completed the ratings or decision task first), as well as the interaction between these variables, were included as fixed effects and participant was included as a random effect with a varying intercept. This alternative approach replicated the effects reported in the main text, finding the predicted significant relationship between connectedness and giving (difference score parameter estimate = .17, $SE = .04, t = 4.001, p < .001$), no significant effect of task order, and the unexpected interaction between task order and connectedness (interaction param-

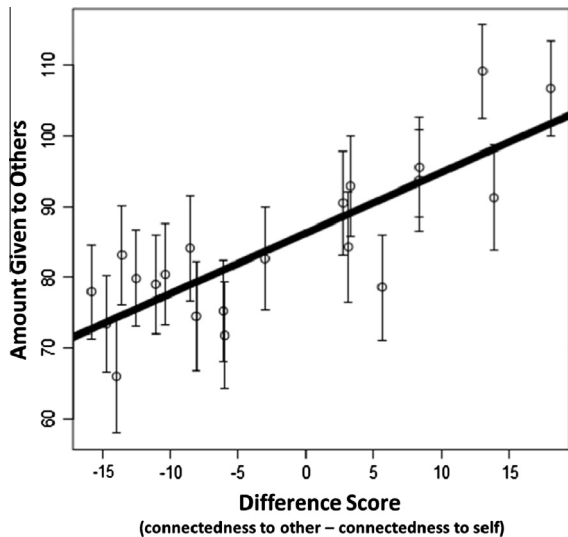


Fig. 6. Average amount given (\pm one SEM) for each of the 21 decisions in the replication of Study 4 as a function of the average difference score observed (rated connectedness to other minus rated connectedness to the future self).

eter estimate = .18, $SE = .06$, $t = 2.80$, $p < .02$) that we discuss in the main text.

Prior to Study 4, we ran an additional study which had the same design aside from two differences. First, this study used an Amazon Mechanical Turk sample of 60 adults, two of whom failed an attention check. Second, the ratings task and allocation task occurred in the same experimental session. As in Study 4, we found a strong correlation between giving to others and the difference score ($r = .83$, $p < .001$, see Fig. 6). The median within-subjects correlation between the difference scores and the amount given for each decision was 0.38, which is significantly greater than zero ($W = 1590$, $p < .001$; mean Fisher transformed r -to- $z = .44$, one-sample $t(55) = 6.90$, $p < .001$). A multilevel modeling approach confirmed the significant effect of connectedness on giving (parameter estimate = .62, $SE = .04$, $t = 14.49$, $p < .001$).

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